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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/614,806	07/09/2003	Jaeyeon Kim	H0004239	8620
21567	7590	08/19/2004	EXAMINER	
WELLS ST. JOHN P.S. 601 W. FIRST AVENUE, SUITE 1300 SPOKANE, WA 99201			VERSTEEG, STEVEN H	
			ART UNIT	PAPER NUMBER
			1753	

DATE MAILED: 08/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	10/614,806		KIM, JAEYEON	
	Examiner		Art Unit	
	Steven H VerSteeg		1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) 1-15 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 27-33 is/are allowed.
- 6) ☒ Claim(s) 16-21, 23-26 and 35 is/are rejected.
- 7) ☒ Claim(s) 22 and 34 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-15, drawn to a method of treating a non-sputtered region of a PVD target, classified in class 216, subclass 52.
 - II. Claims 16-35, drawn to a PVD target, classified in class 204, subclass 298.12.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by a materially different process such as pressing a tool against the sidewalls to impress the pattern of curved projections.

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with David Latwesen on August 16, 2004 a provisional election was made without traverse to prosecute the invention of Group II, claims 16-35.

Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-15 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Drawings

5. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 9 (Figure 8) and 7 (Figure 6). Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

6. Claims 26 and 34 are objected to because of the following informalities: "form" should be "from" in line 1 of claim 26 and line 2 of claim 34. Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claim 35 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. Claim 35 recites the limitation "the flange" in line 3. There is insufficient antecedent basis for this limitation in the claim. I recommend changing claim 35 to depend from claim 34 rather than claim 33 to overcome the rejection.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 16-18, 20, 21, and 23-25 are rejected under 35 U.S.C. 102(b) as being anticipated by US 2002/0079217 A1 to Buehler.

12. For claim 16, Applicant requires a PVD target having a sidewall proximate a sputtering face wherein the sidewall forms a lateral periphery of the target and the target comprises a pattern of curved projections along the sidewall which form cavities that open laterally along the sidewall.

13. Buehler discloses a PVD target (abstract) with a sidewall that forms a lateral periphery of the target (Figure 8). There are projections on the target sidewall that form cavities that open laterally along the sidewall (Figure 10). The projections are curved (Figure 11).

14. For claim 17, Applicant requires the target to be a part of a target/backing plate construction. Buehler discloses a backing plate 104 connected to the target 102.

15. For claim 18, Applicant requires the backing plate to have a sidewall and the pattern of projections to extend along the sidewall of the backing plate. Buehler discloses the limitation (Figure 8).

16. For claim 20, Applicant requires the curved projections to have bases and the sidewall to have a surface extending between the bases of the curved projections with the projections having a maximum height of from about 0.0001 to about 0.01 inches. For claim 21, Applicant requires a periodic repeat of the projections across the sidewall to occur in a distance of from about 0.0001 inches to about 1 inch. Buehler discloses the limitation (Figures 10 and 11).

17. For claims 23-25, Applicant requires the sputtering surface to be defined as the upper surface. For claim 23, the cavities open upward. For claim 24, the cavities open downward. For claim 25, the cavities open sideward. The cavities in Buehler can be considered to be facing upward (because of the sloping sidewalls), downward (again because of the sloping sidewalls), or sideward (because they are on the side).

18. Claims 16-19 and 23-26 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5,269,403 to Pouliquen et al. (Pouliquen).

19. Claims 16-18 and 23-25 are described above. Pouliquen discloses a sputtering target assembly with a backing plate (Figure 2) in which there are curved projections that form cavities in the sidewall of both the target and the backing plate (i.e. the grooves in which the target is screwed into the backing plate). The grooves can be considered to be facing sideward, up, or down because of the way the grooves are positioned.

20. For claims 19 and 26, Applicant requires the backing plate to have a flange and the curved projections to extend along the flange. The backing plate 116 has a flange (i.e. the part with the grooves in it; Figure 2).

Double Patenting

21. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or

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improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

22. Claims 16-18 and 23-25 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 6, 7, and 11 of U.S. Patent No. 6,503,380 B1. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claimed subject matter of the instant application is fully claimed in the issued patent.

23. Claims 16-18 and 23-25 are described above. The patent claims a PVD target (claim 1) comprising a sputtering surface with an outer periphery and a sidewall edge having a repeating pattern of imprints extending therein (claim 1). The imprints are made by knurling (claim 11) and thus would be curved. The imprints extend all the way onto the backing plate (claim 6) and extend along the entire circular periphery (claim 7).

24. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have curved projections on the sidewalls of the target in the patent because knurling does not always lead to sharp, straight diamond shaped imprints.

Allowable Subject Matter

25. Claims 27-33 are allowed.

26. Claim 22 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

27. Claim 35 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

28. Claim 34 would be allowable if written to overcome the claim objection presented above.

29. The following is a statement of reasons for the indication of allowable subject matter: it is neither anticipated nor obvious over the prior art of record to have a target as claimed by Applicant in claim 22 or a PVD target/backing plate construction having a sidewall proximate a sputtering face as claimed by Applicant in claim 27.

30. Buehler discloses solely the imprints on the sidewalls and the backing plate. Buehler does not indicate additionally having microstructures on the projections formed by the imprints. Pouliquen also only discloses the grooves necessary to screw the target to the backing plate and does not disclose additional microstructures on the grooves. Modifying either Buehler or Pouliquen to have microstructures in addition to the projections or grooves already present would not be obvious unless hindsight reasoning is used.

General Information

For general status inquiries on applications not having received a first action on the merits, please contact the Technology Center 1700 receptionist at (571) 272-1700.

For inquiries involving Recovery of lost papers & cases, sending out missing papers, resetting shortened statutory periods, or for restarting the shortened statutory period for response, please contact Denis Boyd at (571) 272-0992.


For general inquiries such as fees, hours of operation, and employee location, please contact the Technology Center 1700 receptionist at (571) 272-1300.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven H VerSteeg whose telephone number is (571) 272-1348. The examiner can normally be reached on Mon - Thurs (6:30 AM - 5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Steven H VerSteeg
Primary Examiner
Art Unit 1753

shv
August 17, 2004